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# AUTOMATION AND THE LAWYER

by  
F. Reed Dickerson\*

*Computers and automation have brought about what some have called the "Second Industrial Revolution." But automation is most frequently considered and discussed as it applies to industry or to scientific research. In this article, Professor Dickerson points out that lawyers, too, are already greatly affected by the age of automation. Computers can probably be most useful to lawyers in the area of research, but as the writer indicates, they can and are being used for such diverse things as estate planning, legislative redistricting and predicting in advance the outcome of judicial decisions.*

Like it or not, today's lawyer must face the often baffling and sometimes unpleasant facts of automation. Nor is his involvement with modern technology limited to the modernized operations of his client. It includes important effects on the substance of the law and even changes in his own operations.

Naturally, a lawyer must know as much as possible about his client's operations. If the latter is a bank, he cannot help but be professionally interested in the extent to which it has mechanized its operations. Moreover, new methods of doing business raise new substantive questions of liability. What, for instance, are the legal responsibilities of the plant owner, the computer manufacturer, the independent programmer, and the service company for injuries resulting from an explosion in a chemical plant controlled by a computer?<sup>1</sup>

Another emerging problem is the handling and keeping of records. Several years ago, when adopting the Uniform Commercial Code, the legislature of New York State found it necessary to change the proposed text to allow the collecting bank to present checks and other items at a processing center, instead of at the payor bank, in cases where the computerization of bank records and transactions had required the pooling of electronic storage facilities.<sup>2</sup>

After a recent investigation, Roy N. Freed, an attorney with the Computer Control Company in Framingham, Mass., has concluded that "the

new technology is having its greatest impact in the area of evidence and techniques of proof." References to "documentary" evidence in existing statutes, for example, need reinterpretation or amending to accommodate the fact that electronic and other devices for storing information are replacing many paper records.

Under section 2 of the Uniform Business Records as Evidence Act, records are competent evidence if made "at or near the time of the act, condition or event." The visually readable print-out that may be drawn from a computer for use in evidence in current litigation may reflect information that was placed on the magnetic tape, disk, or drum at the time of the event in question, which may have been long before. In judging contemporaneity with that event, should the court look at the original tape, which was made contemporaneously with the event but is not a paper record, or at the long deferred print-out, which is a paper record but was not made contemporaneously?

What is the "original" record in such a case? Is it what is carried in the magnetic "memory" (tape, disk, or drum), or is it the print-out? If the print-out is not an "original," can it stand as a "copy," even though it is not a facsimile of what is carried in the machine's memory?

Although these examples hardly constitute a representative sample, they give some hint of the problems that are fast emerging. One small consequence of this broad development has been the recent creation of a special committee of the National Conference of Commissioners on Uniform State Laws to investigate the ex-

tent to which existing statutes, especially those of uniform application among the states, need to be amended to reflect the new technology.

Of greater immediate concern to the lawyer is the possibility that automation may affect his own professional operations. What are the potential values of computers and other mechanical devices to the operations of lawyers? The answer lies (1) in analyzing what lawyers do and what computers do, and (2) in determining in which situations the matching functions can be economically performed by a computer. This is no easy job.

Apparently, it is easier to define the potentially useful capabilities of computers than it is to define the kinds of specific legal functions that computers offer a reasonable hope of assisting. Judging from two exciting but frustrating conferences at Lake



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<sup>1</sup> See Freed, *A Lawyer's Guide Through the Computer Maze*, 6 *PRACT. LAW.* (No. 7) 15, 39 (1960).

<sup>2</sup> See section 4-204 (3) and comment 4 of the Uniform Commercial Code.

Arrowhead,<sup>3</sup> lawyers are being offered a broad range of technical assistance when neither they nor the technicians are sure what the lawyers' basic operational problems are, a situation recently described as a "solution in search of a problem." Even so, experience suggests that technology offers its greatest rewards where the work of lawyers is highly routinized.

Accordingly, it should surprise no one that computers appear to offer the most in the mechanics of legal research. In the technical jargon of the day, this is the field of "storage and retrieval," but so far as cases and statutes are concerned the research problems of lawyers are more of retrieval than of storage. Most of these materials are close at hand; the main problem is to locate among them the specific items that are of immediate interest.

It is here that the bulk of experimentation with computers in the law is being done. The results so far range from the very elaborate systems being developed at the University of Pittsburgh to relatively modest ones.

Many federal agencies are working on methods for searching legal materials such as statutes, legislative history, case law, and agency opinions. Most of these agencies, including the Anti-Trust Division of the Department of Justice, the Internal Revenue Service, and the Central Intelligence Agency, use computers, but only for their sorting and print-out capabilities. So far as I know, only one agency, the Department of the Air Force, currently uses a computer as a legal index, that is, as a tool for searching as distinct from a tool for building a printed index that can be searched conventionally. The Internal Revenue Service tentatively plans to use a computer for searching, but to only a limited extent. The main reason is that for routine legal problems computer searching tends to be unnecessarily complicated and expensive. Most agencies remain satisfied with computer-generated, hard-copy (visually readable) indexes.

Experimentation with electronic storage and retrieval is not confined, of course, to government agencies. Research is being carried on at the

University of Pittsburgh<sup>4</sup> and George Washington University,<sup>5</sup> and until recently it was carried on at Oklahoma State University<sup>6</sup> and the Southwestern Legal Foundation.<sup>7</sup> Even members of the judiciary have become infected. Judge Richard F. C. Hayden of Los Angeles, for one, has been experimenting with computerized court records.

Although the great bulk of activity in electronic storage and retrieval remains experimental, some of it is solidly operational. John F. Harty, head of the Health Law Center at the University of Pittsburgh, has already undertaken major legislative research projects for Pennsylvania, New Jersey, and New York. In the field of private law, a firm in New York City offers to search case law at an annual charge of \$100 plus \$20 for each search request. This system stores case digests indexed on the basis of West Key Number system headnotes.

The main advantages of this particular system appear to be speed and thoroughness; but its designers have apparently made no attempt to use it to reduce the limitations inherent in traditional methods of classification and indexing: inconsistency of classification and lack of depth. This is unfortunate, because the main attraction of computers for retrieval purposes is not so much their capacity for speed and thoroughness as their capacity for widening the frontiers of indexing that traditional methods of classification and indexing have heretofore imposed.

Indexing has been called the Achilles heel of legal research,<sup>8</sup> a fact of which the lawyer is reminded every time he picks up a reference book. The main reason has been that the methods of indexing heretofore available have induced the publishers of law materials, through neither malice nor stupidity, to adopt arrangements of terms that are both shallow and hierarchical. Shallowness in indexing, which consists of a low ratio of search terms to the number of relevant concepts, correspondingly limits the number of usable entry points. Hierarchical arrangement imposes further limitations because such an arrangement can be entered only if the search-

er has the same point of view as that reflected in the arrangement of the index.<sup>9</sup>

For example, a lawyer interested in the dedication of land in subdivisions for recreational purposes will get nowhere when examining a recent book on land use controls if he looks only under "dedication of land" or "recreation." He must look under "subdivisions," a search term appropriate for those who are subdivision-minded but not for those who are dedication-of-land-minded or recreation-minded. Although the limitation is hardly significant in a book on land use controls, the same cannot be said of the vast number of books that are addressed to many legal points of view.

The beauty of coordinate, non-hierarchical indexing, which modern devices make more feasible, is that it greatly increases the depth to which a general subject can be indexed (i.e., the number of concepts that can be referred to in the index) and it puts all search terms on an alphabetical parity (e.g., "dedication of land," "recreation," and "zoning" all appear in their respective alphabetical places as co-equal search terms). This increases the number of immediately accessible entry points and frees the index from the limitations of particular points of view.

On a more modest scale, the American Bar Foundation has used a computer to generate a printed index of current state legislation based on the key words in the title of each law. The index is in the KWIC ("Key Words in Context") format, in which each key word appears at its alphabetical location, but in the center of the page flanked on each side by the words immediately adjoining it in the title. Although non-hierarchical, the index remains shallow because it is limited to the words appearing in titles.

Fortunately, lawyers are not re-

<sup>3</sup> The first conference was reported in *LAW AND ELECTRONICS: THE CHALLENGE OF A NEW ERA* (Jones ed. 1962).

<sup>4</sup> Harty, *The "Key Words in Combination" Approach*, 62M M.U.L.L. 54 (1962).

<sup>5</sup> Lyons, *New Frontiers of the Legal Techniquer*, 62D M.U.L.L. 256 (1962).

<sup>6</sup> Morgan, *The "Point of Law" Approach*, 62M M.U.L.L. 44 (1962).

<sup>7</sup> Wilson, *Computer Retrieval of Case Law*, 16 Sw. L. J. 409 (1962).

<sup>8</sup> Cobb, *Indexing—Achilles Heel of Legal Research?* 62D M.U.L.L. 245 (1962).

<sup>9</sup> See Dickerson, *Electronic Computers and the Practical Lawyer*, 14 J. LEGAL ED. 485, 489 (1962).

quired to choose between two extremes, the status quo and highly complex computers. Between them is a wide range of mechanical and other devices, some of which are relatively simple. One set of relatively simple devices, for example, exploits a principle called "optical coincidence" (also irreverently called "peek-a-boo"), which facilitates deep indexing on a coordinate basis. Here, the searcher builds his search request around the individual terms for the component concepts that define his problem. Optical coincidence makes possible the simultaneous matching of the document entries common to each term in the search question. The system was recently used by Project Lawsearch, a project backed by the Council on Library Resources and three law publishers, to index about 2600 motor carrier cases.<sup>10</sup>

Although this account inadequately surveys the problems of storage and retrieval in the law, limitations of space make it desirable to turn now to other legal functions that data processing devices promise to facilitate and improve. Carl G. Paffendorf of Long Island, for example, is developing a system of estate planning in which computers play an integral part in determining the tax consequences that particular distributions by the client would respectively produce.<sup>11</sup> The system includes a detailed form for recording pertinent information obtained from the client.

Harold I. Boucher, a San Francisco attorney, uses a Flexowriter (an automatic typewriter that cuts punched paper tape as a byproduct) as a kind of mechanized office form book where boilerplate provisions are automatically introduced at appropriate places in letters, trust and estate accounts, descriptions of real estate, petitions for distribution, wills, and fair trade complaints. So far as it contributes to the final document, such an approach eliminates dictation and proofreading time. Its limitations, on the other hand, appear to be no greater than what already inhere in form books or office forms: Boilerplate must always be carefully appraised for its appropriateness to the particular situation at hand.

Some of the larger law firms are already using computers or punched card machines to assist them in maintaining time records for billing purposes and improving other housekeeping functions.<sup>12</sup> The New Jersey State Bar Association uses a computer to keep professional tabs on each of its members, whom it classifies by name, address, legal speciality, year of birth, and year of admission.

Following the method of "diminishing halves," Computer Applications, Inc., and Electronic Business Services have used a General Dynamics SC 4020 Graphic Recorder to redistrict the State of New Jersey for legislative purposes, according to ground rules laid down by the Supreme Court of Errors and state officials. Such a system can be used to (1) divide a state into as many districts, equalized by population (within a maximum error of 5 percent), as may be desired; (2) follow county lines, census tracts, or other official boundaries; and (3) reflect other relevant factors.

One promising use of computers lies in the storage and retrieval of information regarding land. It may now be possible to develop an electronic "land data bank" from which a lawyer armed with the designation of a particular parcel can retrieve all the information on it that relates to incumbrances and other matters of interest, such as real estate taxes and zoning and other restrictions. Experimental programs are already under way in Philadelphia, Cincinnati, Chicago, and several other cities, and committees of the American Bar Association and of the National Conference of Commissioners on Uniform State Laws have begun extensive projects in the field. Although a land data bank may not be in practical operation for perhaps many years, the great increases in population and the complexity of human affairs require that today's increasingly inadequate methods be improved or replaced.

Perhaps the most critical problem yet to be solved in this area is that of developing an adequate, universal system for designating specific parcels by location. A joint effort by the Bureau of Public Roads and the Ur-

ban Renewal Administration has already produced a proposed "uniform land use coding structure." If successful, these developments may enable lawyers to recapture some of the business of title searching that they have lost to the title companies.

One of the most interesting (and controversial) current projects is the effort of Reed C. Lawlor, a Los Angeles patent attorney, to build a mathematical model of past judicial behavior that when computerized will make it possible to predict with high accuracy how a court will decide a particular kind of case.<sup>13</sup> Lawlor's prediction system is based on the assumption, fundamental to *stare decisis*, that each judge makes an honest attempt to be consistent with his previous judgments and, in some cases, with known collateral assumptions. Because the system is based on how a judge has actually responded to specific fact situations rather than on how he has formally rationalized those responses, it closely adheres to one of the basic assumptions of realistic jurisprudence: What a judge does in fact is a surer basis for predicting or describing the course of law than what he announces as his official reasons. (Naturally, such a system must be adjusted to take account of relevant new factors.)

The notion that someone might rely on a "little black box" to predict judicial behavior has created near hysteria in some members of the bar, who apparently view it as a direct threat to the underpinnings of civilization itself.<sup>14</sup> And yet, far from being alien to the spirit of the common law and case precedent, Lawlor is simply trying to use what he calls "causal logic" to help lawyers and judges improve the equality of treatment to which the common law is irrevocably committed. Although strong misgivings still exist as to the feasibility of his system, experience

<sup>10</sup> Thomas, *Project Lawsearch—A Non-Electronic Approach to Law Searching*, 63M M.U.L.L. 49 (1963). And see Dickerson, *A Personal Research System*, 9 PRAC. LAW. (No. 4) 11 (April 1963).

<sup>11</sup> Paffendorf, *Electronic Aids to Estate Planning*, 63M M.U.L.L. 54 (1963).

<sup>12</sup> Mathews, *Computer Dollars and Sense in Lawyers' Time Records*, 7 PRAC. LAW. (No. 5) 8 (1961).

<sup>13</sup> Lawlor, *What Computers Can Do: Analysis and Prediction of Judicial Decisions*, 49 A.B.A.J. 337 (1962).

<sup>14</sup> See, e.g., Wiener, *Prediction by Computers: Nonsense Cubed—and Worse*, 48 A.B.A.J. 1023 (1962).

with its development and use offer valuable insights into the nature of law itself.

Even so, the more apprehensive lawyers remain uneasy about the possibility that automated legal operations may soon displace their own. Nor are their fears confined to occupational unemployment. They also fear that human legal judgment may abdicate in favor of machine legal judgment; that machine language may require a precision of thought and expression that destroys the richness and flexibility that ordinary language now provides; that computerized lawyering may expose common law principles to subversion by the alien philosophies of modern technology; and that embracing modern technology may commit the law to a closed system.<sup>15</sup>

Except for their more sophisticated forms, these fears are reminiscent of the lawyers' reluctance in the last century to adopt such monsters of technology as the typewriter and the telephone. This remark is not meant to suggest that there are no professional dangers in computers or other forms of automation. The point is simply that these devices are tools and no more. So long as they are controlled by human masters cognizant of their capabilities and limitations, they offer no dangers not already inherent, in lesser degree, in other labor-saving devices such as legal form books.

The lawyer owes it to the public and to himself to understand the general capabilities (if not the technical workings) of the many tools that modern technology now offers. Properly and sensibly selected, these can improve his knowledge of his clients' needs and of the law and, in addition, help him provide a faster and better legal service. Most important, they can help him improve his own operations, not by surrendering to a machine, but by gaining the time and fuller opportunity for making important professional judgments that the deadening effect of many legal routines is now seriously impairing.

<sup>15</sup> These fears are discussed in Dickerson, *Some Jurisprudential Implications of Electronic Data Processing*, 28 LAW & CONTEMP. PROB. 53 (1963).

## "CURRENT STATE LEGISLATION"— A UNIQUE COMPUTER USE

*An article appearing in this month's RES GESTAE discusses some of the present and possible future uses of electronic computers in the field of law. A computer program currently available to practitioners is called "Current State Legislation." This project was originally undertaken by the American Bar Foundation and was published and distributed by the Bobbs-Merrill Company in Indianapolis. On January 1 of this year, the entire project was taken over by the University of Pittsburgh. The following description of the project is adapted from an article which appeared in the March, 1964, issue of the American Bar Association Journal.*

On January 1, 1965, the Legal Research Foundation, a nonprofit subsidiary of the University of Pittsburgh, took over from the American Bar Foundation a unique publication and service covering the legislation of all fifty states entitled *Current State Legislation*. It provides a quick, indexed reference to legislation enacted by the state legislatures.

From copies of the new legislation received directly from various state legislative agencies, titles are prepared and keypunched into I.B.M. cards. The cards are fed into a computer and the output into a printer, which are programmed to perform these mechanical manipulations: (1) index every word in each title, except those on the nonindexing list; (2) arrange the indexed word to print out in its context; (3) order the bibliography, or listing of titles, alphabetically by states and numerically by act; and (4) furnish a printout of the finished product, which is reproduced and distributed to subscribers.

The publication consists of four parts. Part I, "Introductory Material," contains instructions for use of the KWIC (keyword in context) index, instructions for ordering copies of legislation and current information as to the legislative sessions. Part II, "Keyword Index," contains the indexed words preceded and followed by the words adjacent to the keyword as it appears in the complete title and followed by the reference code identifying the state and bill number. Part III, "Listing of Current Legislation

by State," contains the titles constructed by the editorial staff to report the new enactments and amendments, which have been indexed under specific and accurate terms. The titles are descriptive of the legislative action and do not purport to digest, abstract or to summarize the provisions of the new laws indexed by this method. Part IV, "List of Vetoes of Legislation Previously Indexed," contains the list of vetoes of legislation in the few states in which legislation is indexed prior to action by the governor because of the considerable delay between passage by the legislature and action by the governor.

The principal service of *Current State Legislation* is the supplying of a research tool to enable the subscriber to follow both the legislative activity in one or more states and the multistate activity on a particular subject. Also it is particularly useful to the legal departments of the law firms serving corporations with multistate operations that might be affected by state legislation. A related service, limited to subscribers, is the filling of orders for copies of any enactment reported.

By the use of this research tool, lawyers, researchers, authors and others should be able to determine which states have enacted legislation or amendments on any particular subject.

Information on this service may be obtained from the Legal Research Foundation, University of Pittsburgh, Pittsburgh, Pennsylvania 15213.